Neophema chrysogaster

orange-bellied parrot

Image by Simon de Salis

TASMANIAN THREATENED SPECIES LISTING STATEMENT

Common name: orange-bellied parrot

Scientific name: ***Neophema chrysogaster*** (Latham, 1790)

Group: Aves, Psittaciformes, Psittaculidae

Status: *Threatened Species Protection Act 1995*: **endangered**

Environment Protection and Biodiversity Conservation Act 1999: **Critically Endangered**

Distribution: Endemic status: **Migratory**

Tasmanian NRM Regions: **South (breeding range and migration route), North-West (migration route)**

Tasmanian IBRA Regions: **TWE (breeding range and migration route), KIN (migration route)**

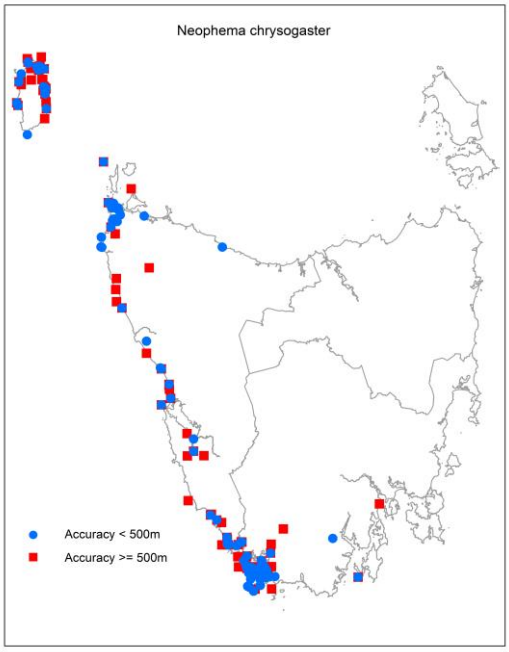

Figure 1. Natural Value Atlas records of the Orange-bellied parrot, showing NRM regions. Note: breeding only occurs in the south-west.

Plate 1. Orange-bellied parrot. Image by Simon de Salis (DPIPWE)

SUMMARY

The orange-bellied parrot (OBP) is a small, grass-green parrot with a bright yellow chest, azure blue markings on the wings and brow and a vivid orange patch on the belly. The OBP is one of just three Australian migratory parrot species. The OBP now breeds only at Melaleuca in the far south-west of Tasmania and migrates along the west coast of Tasmania, spending the late autumn and winter months on the south-east coast of mainland Australia.

The wild population measured at the start of each breeding season did not exceed 35 birds between 2010 and 2018.

According to the criteria in the most recent Recovery Plan (DELWP 2016), the wild population is neither stable nor increasing. The wild population is not viable without supplementation from captive bird releases to the wild.

Concern for the plight of the species was first voiced by Matthews (1917) and the abundance of the OBP has declined steadily since, but the causes are still not well understood.

Threats to the species include degradation and loss of habitat, predators and competitors, loss of genetic diversity and inbreeding, disease, stochastic environmental events, and climate change.

There is an active national Recovery Team and Strategic Action Coordination Group which comprise representatives from the Australian, Tasmanian, Victorian and South Australian Governments and a number of other stakeholders. These groups oversee a collaborative adaptive management focused recovery effort. There is also a significant captive population that is managed as a Zoo and Aquarium Association Australasian Species Management Program, which acts as an insurance population and provides birds for endorsed release to the wild projects.

IDENTIFICATION AND ECOLOGY

Neophema chrysogaster (known as the orange-bellied parrot, hereafter referred to as the OBP) is a member of the parrot family Psittaculidae.

Adult OBPs are grass-green on their back, wings and flanks, with a bright yellow chest, azure blue markings on their wings and brow, and a vivid orange patch on their belly (Plate 1). They are around 20 cm long and weigh approximately 45 g.

Male OBPs have a very bright two-toned frontal band across the forehead, whereas the females have a duller, single-toned blue band.

Juvenile OBPs are a duller green and have a bright orange/brown bill, whereas the adults have a black bill.

The mean lifespan of OBPs fledged between 1990 and 1999 was just over 2 years. However, some wild birds aged nine years or more have been recorded. These older birds tend to be observed at the breeding grounds and at known non-wintering grounds in most years.

OBPs nest in natural hollows or in nest boxes. The historical average clutch size is 4.7 eggs, but this has fallen in recent years.

OBPs typically arrive at their breeding grounds in south-west Tasmania from September and depart at the end of the breeding season - adults tend to begin their northern migration from February onward, with juveniles departing from March and April.

Survey techniques

OBPs have a distinctive patterning which allows them to be easily identified. To assist with population monitoring, all wild OBPs have been fitted with coloured leg bands to enable individuals to be identified.

Birds are monitored during each breeding season by Tasmanian Government staff and volunteers, managed and coordinated by the Tasmanian Government's Orange-bellied Parrot Tasmanian Program.

Selected areas of known and potential over-wintering habitat on the Australian mainland are surveyed by experienced bird watchers during several coordinated survey weekends held each year during the non-breeding season.

Confusing species

The closely related blue-winged parrot (*Neophema chrysostoma*) and the OBP sometimes flock together and are superficially similar in appearance. However, the blue-winged parrot has olive-green rather than bright grass-green plumage and has a yellow patch between the eye and bill, and an all blue shoulder patch.

DISTRIBUTION AND HABITAT

The OBP is endemic to south-eastern Australia, spending the breeding season in Tasmania and the non-breeding season along the south-eastern coast of mainland Australia.

Breeding is currently limited to one known location, the Melaleuca area in south-west Tasmania, in the Southwest National Park which is within the Tasmanian Wilderness World Heritage Area. A small number of naturally migrating birds are observed at Melaleuca for the breeding season, but only a few birds successfully make the return journey over multiple years. Due to the low number of naturally migrating birds, the wild population is supplemented with captive birds to balance the sex ratio at the commencement of the breeding season and increase the number of potential breeding pairs. As a result of this management approach, captive birds now contribute significantly to the parentage of wild-born birds. The program is reviewed annually by the Recovery Team and Strategic Action Coordination Group.

The migration route includes the coast of western Tasmania and King Island.

The non-breeding range includes New South Wales, Victoria and South Australia, although nearly all confirmed non-breeding season records from the past 10+ years have been from along the coastline in south-western Victoria. Recent sightings at only a few regular observation sites in Victoria is likely a reflection of the small population size, making detectability in other areas that are not as easily accessed or well surveyed unlikely.

Breeding occurs in a mosaic of eucalypt forest and rainforest in the Tasmanian Wilderness World Heritage Area in south-west Tasmania, with foraging occurring on nearby moorland and sedgeland plains (DELWP 2016). Natural nesting occurs in tree hollows, but almost all nesting at Melaleuca is now undertaken in nest boxes which have been mounted to eucalypt trees and on poles. Wild foods (including mature flowers, fruits and seeds of a range of grasses, chenopods, sedges and herbs) are supplemented with seed at feed tables that have been set up to assist with monitoring of the population during the breeding season. Planned ecological burns have been undertaken in recent years to promote natural food sources within the foraging range of where the birds are nesting during the breeding season.

During the non-breeding season, the birds utilise a range of habitats on the south-east coast of the Australian mainland in areas including saltmarshes, dunes and adjacent shrubby areas and weedy pastures, within 10 km of the coast and 200 m of coastal wetlands and waterbodies, but more than 2 km from developed/built up areas (Ehmke 2009, Ehmke and Tzaros 2009).

Migratory habitat on Tasmania's west coast has not been well mapped but includes vegetated sand dunes, heathlands, grasslands, saltmarsh and pasture, typically within 5 km of the west and north-west coast of Tasmania (including nearby islands) (DELWP 2016).

On King Island, most sightings have been in saltmarsh dominated by beaded glasswort (*Sarcocornia quinqueflora)* near tall and dense swamp paperbark (*Melaleuca ericifolia)* forest (Higgins 1999, Ehmke and Tzaros 2009).

POPULATION PARAMETERS

Every wild-born and captive-bred released OBP is given a unique leg band combination so that each individual OBP in the wild can be identified and monitored.

The number of birds that naturally migrate to Melaleuca during each breeding season is recorded. Based on these counts, the wild adult population is fewer than 50 adults, with between 17 and 35 individuals recorded returning to the breeding grounds each spring between 2011 and 2019.

RESERVATION STATUS

The entire known breeding range of the OBP is within the Southwest National Park in southwestern Tasmania and forms part of the Tasmanian Wilderness World Heritage Area. The migration route and non-breeding range includes a range of land tenure.

CONSERVATION STATUS

The OBP was listed in 1995 as endangered on the Tasmanian *Threatened Species Protection Act 1995* based on the small population size (estimated to be <200 individuals), competition and predation, and loss of winter feeding grounds (Vertebrate Advisory Committee 1994). The OBP is also a listed threatened species under other state's threatened species legislation within the range.

The OBP is also a listed species under the Australian Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA), listed as endangered in 1992, then uplisted to critically endangered under the EPBCA in 2006.

The OBP is also listed as critically endangered under the IUCN Red List (BirdLife International 2018).

THREATS, LIMITING FACTORS & MANAGEMENT ISSUES

Threats, limiting factors and management issues for OBPs include:

Degradation and loss of habitat: Potential activities that could cause degradation of habitat within the breeding grounds may include inappropriate fire regimes and disturbance from human activities.

Potential activities that could cause loss of habitat within the migration pathway/s and within overwintering habitat may include development and land use change, inappropriate hydrological regimes, and invasive weeds.

Predators and competitors: A range of known native and introduced predators and competitors occur within the range of the OBP. Predation and competition can occur within the breeding range, migratory pathway and within the overwintering habitat.

Known predators within the breeding range include birds of prey and black currawongs, snakes, and sugar gliders (note sugar gliders do not currently occur at Melaleuca, the last known breeding site).

Within the migratory pathway birds of prey and cats are potential predators, and within the overwintering habitat, birds of prey, snakes, foxes and cats are threats.

Known nest site competitors within the breeding range include the tree martin.

Loss of genetic diversity and inbreeding: The small OPB population size increases the consequences of loss of genetic diversity in both the wild and captive populations. Declining reproductive performance, vigour and lifespan, as well as a reduced ability to adapt to changes in the environment are ongoing threats to the species (Frankham *et al.* 2010).

Stochastic environmental events: The potential for stochastic environmental events to impact on the wild population is significant given the small wild population size. Such events could include a bushfire at the breeding grounds immediately prior to, or during, the breeding season, significant storm events during migration or more general catastrophic weather such as extreme heat or cold weather events when eggs or young are in the nest. Such events may be significant for the OBP given the small size of the wild population and that all wild breeding now occurs at a single location.

Stochastic environmental events may also impact on the captive population, but as the population is spread across a number of institutions in a number of states, there is some spread of risk, although a significant event at one of the larger breeding institutions could have a significant impact on the captive population and capacity of the captive program to provide suitable birds for endorsed release to the wild events for some period of time.

Disease: Viral and bacterial diseases have the potential to significantly impact both the wild and captive populations of OBPs. Psittacine Beak and Feather Disease and the causative Beak and Feather Disease Virus, of which there are several different strains, have been recorded in the OBP population.

Climate change: The trend towards a warmer climate will increase the frequency of bushfires, which may impact on the habitat of the OBP. Extreme weather events may also be more frequent. There may also be other, as yet unknown, direct and indirect consequences of climate change.

While most species can tolerate some level of exposure to threatening processes, the OBP is particularly vulnerable due to its small population size and migratory habit.

MANAGEMENT STRATEGY

Management objectives

The main objective for the management of the OBP is to achieve a stable or increasing population in the wild. Other objectives include the protection and enhancement of habitat to maintain and support growth of the wild population, and to maintain and support the capacity of the captive population to support endorsed releases of captive-bred birds to the wild and to provide a secure long-term insurance population (DELWP 2016).

What has been done?

Population monitoring: Population monitoring is undertaken annually at the breeding grounds and within the non-breeding range over winter. Population monitoring allows detection of trends in survival and reproduction, evaluation of management actions and implementation of adaptive management.

Captive breeding program: There is a significant coordinated captive breeding program managed as an Australasian Species Management Program through the Zoo and Aquarium Association. As at 1 August 2019, there were nine ZAA institutions holding OBPs, of which five were directly participating in the breeding program.

The captive population acts as both an insurance population in case of extinction in the wild and as a breed-for-release population, providing birds for endorsed release to the wild.

All breeding and transfers are undertaken according to the Species Coordinator's recommendations. In addition to holding the insurance population, and captive breeding and display, the captive program also holds ranched birds (captive-bred released and recaptured birds) and head-started birds (wild-born juveniles) over the non-breeding season in adherence to Strategic Action Coordination Group's recommendations.

The objective of ranching and head-starting is to increase the between breeding season survival of birds by eliminating the high risk of mortality during the migration and over-winter foraging period. Birds are held in captivity over the non-breeding season prior to pre-release screening and then returned to the wild in time to participate in the following breeding season.

Release to the wild projects: Current release projects include: the spring release of adult birds at Melaleuca to balance the sex ratio and increase breeding opportunities; a trial release of adult birds at New Harbour (to trial a more remote release site and expand the carrying capacity of the breeding grounds); a trial release of juveniles at Melaleuca at the end of the breeding season to investigate whether younger birds less exposed to captive conditions perform better at migration than captive-bred released adult birds; and an autumn/winter release of captive-bred juvenile and adult birds in known habitat in Victoria to trial whether the presence of larger flocks of birds in good habitat act as a beacon to naturally migrating birds.

All birds identified for potential release are placed in pre-release quarantine and are screened and tested in line with Veterinary Technical Reference Group protocols. Only birds that clear this process are considered for release. All adopted and trial release activities are reviewed annually by the Recovery Team, and release to the wild activities for the year ahead are endorsed and prioritised by the Strategic Action Coordination Group

Ecological burning: Over recent years, the Parks and Wildlife Service and the Orange-bellied Parrot Tasmanian Program have been working together on the planning and implementation of targeted ecological burns aimed at creating a mosaic of preferred foraging habitat within the breeding grounds.

Disease management: Given the small population size and habits of this species, the potential risks of a disease event are significant.

To minimise the risks several strategies are in place. Strategies in place for the wild population include: the operation of a Veterinary Technical Reference Group who develop and review pre-release screening and disease testing protocols for birds identified for potential release; implementation of these protocols; screening and testing of nestlings born in the wild; and biosecurity protocols for nest box management and supplementary feeding practices in the wild. There are also two Beak and Feather Disease Virus vaccine trials currently underway in captivity. There are also screening, testing and biosecurity protocols in place for captive to captive transfers.

Predators and competitors: Predators and competitors are actively managed at the known breeding grounds and at mainland release sites. Other intermittent management may also occur within some sections of the migratory pathway/s and potential overwintering habitat, but this is not coordinated in the same manner as the management at the known breeding grounds and mainland release sites.

What is needed?

- Sufficient resources to ensure that very high and high priority recovery actions continue to be completed.
- Review the outcomes of trials and research activities to inform an adaptive management approach for future management, trials and research activities.
- Continue to maintain a healthy and as robust as possible captive population that can act as an insurance population and can continue to provide suitable birds for endorsed release to the wild projects.
- Improve knowledge of migratory route/s and habitat condition and availability.
- Improve knowledge of current threats.

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View:
https://dpipwe.tas.gov.au/conservation/threatened-species-and-communities/lists-of-threatened-species/full-list-of-threatened-species

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